Spec 1

The particular parameters exhibiting major differences include: number of scan lines, orientation and position of scan lines; angular field of view; depth of field; scan speed; and illumination intensity. However, it may be desirable to produce a barcode scanner capable of both fixed and portable modes of operation. Previously this combined operation has been accomplished by compromising among the various requirements for fixed and portable modes of operation, yielding a barcode scanner which can be used in both modes of operation but with performance inferior to barcode scanners designed for one mode of operation only. The barcode scanners currently in use project the pattern from a single aperture. In order for a user to use the device in portable mode, extensive orientation of the bar code scanner is required to aim the scan pattern at the bar code. Once the bar code has been read, further manipulation is required to return the scanner to a position suitable for fixed scanning.

Summary of the Invention

[0011] The present invention is directed to a data reader such as a barcode scanner wherein the scan pattern generating optics employed are optimized for different modes of operation. In a preferred embodiment, different patterns are projected from different apertures in the scanner housing, one scan pattern optimized for handheld operation and the other optimized for fixed operation. Alternately or in addition other features besides the scan pattern may be optimized for fixed and handheld modes. These features include, among others, the presence or absence of an aiming beam, which may be generated from the same laser source as the scan pattern (a preferred embodiment) or from another source, and enabling or disabling decoding of the signal received signal during a portion of a facet wheel rotation. In a preferred embodiment, decoding is disabled while the scan line(s) for handheld use is generated unless a switch or trigger is actuated. Alternately first one scan pattern is not generated when the scanner is in the second mode of operation.

[0012] In one embodiment of the present invention, a single set of pattern generating optics is employed to simultaneously project a plurality of scan patterns, one scan pattern optimized for fixed and performance and one scan pattern

optimized for portable performance. In another embodiment, a single set of pattern generating optics is switched between a scan pattern optimized for fixed mode reading and a scan pattern optimized for portable mode reading. In one preferred embodiment, separate and distinct scan pattern generating optics are employed, thereby allowing independent optimization of the performance characteristics of the barcode scanner for each mode of operation.

[0013] A barcode scanner incorporating the present invention offers the advantage of flexibility for the end user, in that one device can be used in multiple modes of operation without suffering from inferior performance characteristics of previously available fixed/portable barcode scanners. The device described herein exhibits performance characteristics in each mode of operation comparable to those of barcode scanners designed for only one mode of operation or the other. The multiple aperture embodiment may also minimize the manipulation of the scanner required for a user to aim the scanner when the scanner is in portable mode and allowing the user to easily return the scanner to fixed mode.

Brief Description of the Drawings

[0014] Fig. 1 illustrates a multiple window barcode reader suitable for both fixed and handheld operation;

[0015] Fig. 2 illustrates a rotating facet wheel scan engine and two sets of scan pattern generating optics;

[0016] Fig. 3 is a front left side perspective view of a bimodal scanner positioned in a base unit;

[0017] Fig. 4 is a rear right side perspective view of the scanner and base unit of Fig. 3;

[0018] Fig. 5 is an exploded view of the scanner and base unit of Fig. 3 showing the scanner removed from the base unit;

[0019] Fig. 6 is a front right side perspective view of an alternate bimodal with the second window in a top-forward position;

[0020] Fig. 7 is a rear right side perspective view of another alternate bimodal scanner with the second window in a top-rearward position;

In the Specification

On page 4, amend paragraph 11 as follows:

[0011] The present invention is directed to a data reader such as a barcode scanner wherein the scan pattern generating optics employed are optimized for different modes of operation. In a preferred embodiment, different patterns are projected from different apertures in the scanner housing, one scan pattern optimized for handheld operation and the other optimized for fixed operation. Alternately or in addition other features besides the scan pattern may be optimized for fixed and handheld modes. These features include, among others, the presence or absence of an aiming beam, which may be generated from the same laser source as the scan pattern (a preferred embodiment) or from another source, and enabling or disabling decoding of the signal received ~~signal~~ during a portion of a facet wheel rotation. In a preferred embodiment, decoding is disabled while the scan line(s) for handheld use is generated unless a switch or trigger is actuated. Alternately first one scan pattern is not generated when the scanner is in the second mode of operation.

Instruction

On page 4, amend paragraph 0012 as follows:

[0012] In one preferred embodiment ~~of the present invention~~, a single set of pattern generating optics is employed to simultaneously project a plurality of scan patterns, one scan pattern optimized for fixed ~~and~~ performance and one scan pattern optimized for portable performance. In another embodiment, a single set of pattern generating optics is switched between a scan pattern optimized for fixed mode reading and a scan pattern optimized for portable mode reading. In one preferred embodiment, separate and distinct scan pattern generating optics are employed, thereby allowing

independent optimization of the performance characteristics of the barcode scanner for each mode of operation.

On page 5, amend paragraph 0013 as follows:

[0013] A barcode scanner of one or more of the preferred embodiments may offer ~~incorporating the present invention offers~~ the advantage of flexibility for the end user, in that one device can be used in multiple modes of operation without suffering from inferior performance characteristics of previously available fixed/portable barcode scanners. The device described herein exhibits performance characteristics in each mode of operation comparable to those of barcode scanners designed for only one mode of operation or the other. The multiple aperture embodiment may also minimize the manipulation of the scanner required for a user to aim the scanner when the scanner is in portable mode and allowing the user to easily return the scanner to fixed mode.

On page 5, amend paragraph 0014 as follows:

[0014] Additional aspects and advantages ~~of this invention~~ will be apparent from the following detailed description of preferred embodiments, which proceeds with reference to the accompanying drawings.

On page 7, amend paragraph 0038 as follows:

[0038] When the portable mode of operation is desired, the operator may lift barcode scanner 100 from the base unit 105. The scan pattern 110 produced from scan lines passing through the second window 108 is optimized for portable operation. In portable mode operation, the operator aims the barcode scanner 100 to orient the ~~plane~~ plane of the scan pattern across the barcode. The portable mode scan pattern 110 preferably comprises a pattern of one or a few scan lines (e.g. two or